



Hobby Close Field Open Space Improvements

Construction noise assessment

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1. Summary

- 1.1. Portsmouth City Council Regulatory Services have been commissioned to undertake an assessment of noise from construction works associated with proposed drainage improvements to the existing playing field located at Hobby Close, Waterlooville.
- 1.2. The works basically involve transporting subsoil to the site via a temporary haulage route, then using an excavator and powered roller to re-profile and level the site.
- 1.3. It is intended for all works to be restricted to normal construction site hours of 07:00 - 19:00hrs, Monday - Friday and 07:00 - 12:00hrs on a Saturday.
- 1.4. Cadna noise prediction software was used to model the site and produce contours of free-field noise levels associated with the construction works. See Noise map Appendix 2.
- 1.5. The contours indicate that the nearest residential dwellings will be subjected to noise levels of around 56dB(A).
- 1.6. Criteria for noise from construction sites based upon The Wilson Report suggests that Noise levels between 07:00 and 19:00hrs outside the nearest window of the occupied room closest to the site boundary should not exceed 70dB(A).
- 1.7. Therefore predictions indicate there is unlikely to be any significant impact upon local dwellings due to noise from the proposed construction works and specific mitigation measures will not be required other than basic site controls, as recommended within the code of practice for noise and vibration control on construction and open sites (British Standard BS5228-1 2009).

2. Proposed works

- 2.1. The proposed construction works are required to improve the drainage of an existing playing field located within Hobby Close, Waterlooville, by using imported sub soil to re-profile and level the site.
- 2.2. This will involve soil being transported to site by 16 tonne tipper trucks via a haulage route running from Eagle Avenue and along the northern perimeter of the field. See site plan Appendix 1.
- 2.3. The material will then be tipped directly on to the point of use and an excavator used to move and shape the required profile before being compacted and levelled by a powered roller.

2.4. Works will commence in the south west corner of the site and move progressively back towards the north east corner, therefore any impact upon residential dwellings will be gradually minimised as separation distances are increased.

2.5. Activities on site are to be restricted to the following times.

- Working hours: 0700 – 19:00 Monday – Friday; 0700 – 1200 Saturday.
- Delivery hours: 0900 – 16:00 Monday – Friday; 0900 – 1100 Saturday.

3. Assessment criteria

3.1. Historically noise limits for construction sites have been based upon recommendations contained within the 1963 Wilson Report on Noise.

3.2. This recommended that "noise from construction and demolition sites should not exceed the level at which conversation in the nearest building would be difficult with the windows shut...Noise levels between 07:00 and 19:00hrs outside the nearest window of the occupied room closest to the site boundary should not exceed 70dB(A) in rural, suburban and urban areas away from main road traffic and industrial noise, or 75dB(A) in urban areas near main roads or heavy industrial areas... when working outside of normal hours the allowable noise levels will be much less .. a reduction of 10dB(A) may often be appropriate... Noisy work should not be permitted between 22:00 and 07:00hrs ".

3.3. The location of the development can be best described as a suburban area, therefore it is proposed that the appropriate assessment criteria should be based upon a level of LAeq(12hr) 70dB.

4. Predicted Construction noise levels

4.1. Cadna noise prediction software was used to model the site and produce contours of free-field noise levels associated with the construction works, based upon the following assumptions.

- Receiver height 1.5m
- Source height 0.5m
- Propagation over soft ground
- Sound power level of 16 tonne truck 111dB(A)
- Four trucks per hour modelled as moving point sources along the haulage route at a speed of 10 km/h.
- Single excavator operating 100% of the assessment period with a sound power level of 100dB(A), modelled as a point source.
- Single roller with a sound power level of 111dB(A) modelled as a moving point source at a rate of 50 movements per hour and speed of 5km/h.

- 4.2. Owing to the progressive nature of the works a single sample area has been modelled for activities at the most sensitive point i.e. adjacent to the dwellings within Hobby Close. See Noise map Appendix 2.

5. Analysis of Results

- 5.1. Analysis of the noise map indicates that the nearest residential dwellings are likely to be subjected to construction noise levels in the region of 56dB(A), which is well below the criteria for noise from construction sites.
- 5.2. Therefore provided the works are restricted to the proposed hours there is unlikely to be any significant impact in terms of noise associated with the construction activities.

6. Mitigation Measures

- 6.1. All construction sites regardless of impact should ensure best practicable means are employed to reduce noise emissions to a minimum.
- 6.2. Project Managers and Contractors should ensure they are familiar with and implement the guidance regarding mitigation measures contained within Sections 4,5,6,7 and 8 of British Standard BS5228-1 2009 "Code of practice for noise and vibration control on construction and open sites".
- 6.3. However the assessment indicates that basic site controls should be sufficient and additional specific mitigation measures to protect individual dwellings in terms of barriers, noise insulation measures or temporary re-housing will not be necessary.

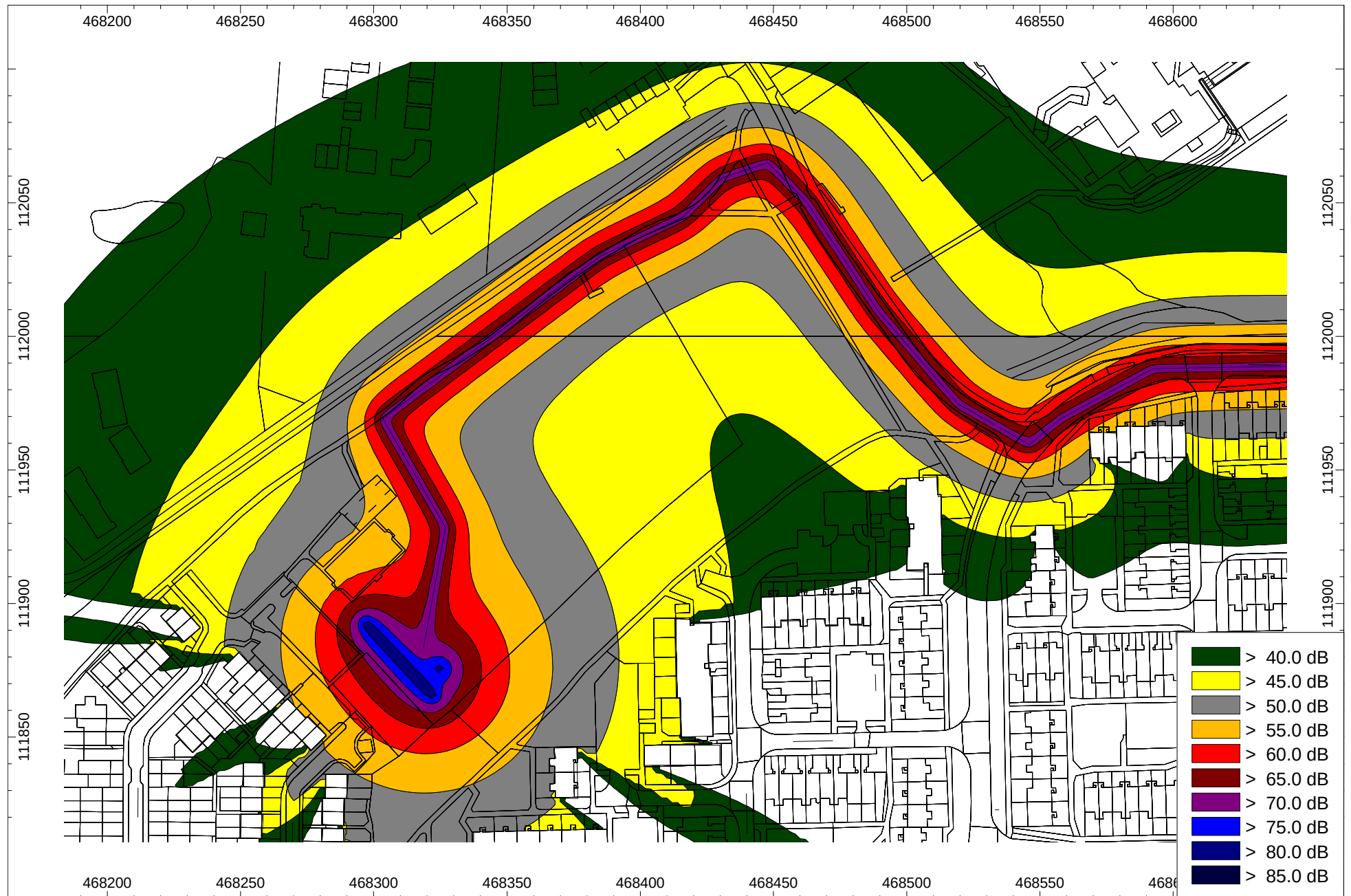
7. Conclusions

- 7.1. Predictions indicate there is unlikely to be any significant impact upon local dwellings due to noise from the proposed construction works.
- 7.2. Therefore specific mitigation measures will not be required other than basic site controls, as recommended within the code of practice for noise and vibration control on construction and open sites (British Standard BS5228-1 2009) to ensure best practicable means are employed to minimise emissions.

Appendix 1: Site Plan



Appendix 2: Noise Maps



Glossary of Technical Terms

A" Weighting	Filter used in the measurement of sound to simulate the frequency response of the human hearing range.
dB, dB(A)	Decibels". A logarithmic scale used to describe the magnitude of sound. Sound is generally measured by fluctuations in pressure (Pa, Pascalls), human hearing ranges from 20 μPa to 20,000 Pa. The decibel scale compresses these figures to a more manageable range of 0 – 140dB. The human ear responds to continuous sound sources in broadly the following way: • A 1 dB increase is the smallest audible change in level under laboratory conditions it would only be noticeable if two sounds were presented in quick succession. • A 3dB increase is the smallest noticeable audible change which could be detected over a period of time. • A 10dB increase represents a doubling of loudness. The suffix (A) simply identifies that the sound has been measured using an "A" weighting filter.
L01, LA01	The L01 is a statistical index defined as the level of noise exceeded for 1% of the measurement period and relates to the highest 1% of the measured values. Often used as an alternative to Lmax to describe the highest noise levels in the locality. The inclusion of "A" in the term identifies that the sound has been measured using an A weighting filter.
L10, LA10	The L10 is a statistical index defined as the level of noise exceeded for 10% of the measurement period and relates to the highest 10% of measured values. Therefore it describes the higher noise levels in the locality and is commonly employed in the UK to describe road traffic noise. The inclusion of "A" in the term identifies that the sound has been measured using an A weighting filter.
L50, LA50	The L50 is a statistical index defined as the level exceeded for 50% of the measurement period. Therefore it is the statistical average of the measured noise levels. The inclusion of "A" in the term identifies that the sound has been measured using an A weighting filter.
L90, LA90	The L90 is a statistical index defined as the level of noise exceeded for 90% of the measurement period and relates to the lowest 10% of measured values. Therefore it describes the underlying level of noise or background level in the locality. The inclusion of "A" in the term identifies that the sound has been measured using an A weighting filter.
Leq(T), LAeq(T)	The "Equivalent continuous noise level". Noise levels vary with time. The Leq is the level of a steady sound that has the same amount of energy as the fluctuating noise being measured over the time period T. Although not strictly true a simple definition would be a time

	weighted average. The inclusion of “A” in the term denotes the measurement has been obtained using an A weighting filter.
Lmax, LAmax	The maximum noise level measured during the measurement period. The inclusion of “A” in the term denotes the measurement has been obtained using an A weighting filter.
Sound power level (Lw)	The total amount of sound inherent in a particular sound source independent of the acoustic environment it is in.